

d.)      **Remarks.**

No claims have been amended and claims 23-49 and 52-54 and 76-122 are currently pending.

**Remarks Regarding 35 U.S.C. § 112, Second Paragraph.**

A. Claims 23-49, 52-54 and 76-122 stand rejected, under 35 U.S.C. § 112, second paragraph, as allegedly containing new matter. Applicant respectfully traverses this rejection.

Specifically, the Examiner asserts that the claimed shielding effectiveness added to these claims relates to plane wave shielding and not to magnetic wave shielding. Applicant respectfully disagrees.

Plane wave shielding and magnetic wave shielding are closely related properties of shielding. The terms “plane wave” and “magnetic wave” refer to testing parameters, not to any to a distinction having to do with the presence or absence of enhanced shielding. As is shown in Table I, Applicant’s claimed invention exhibits both types of shielding. If the Examiner believes that a relevant distinction between the two shielding tests as they apply to the materials of the claimed invention, applicant respectfully request that an Examiner’s Affidavit be placed into the record to afford Applicant’s an opportunity to respond to the rejection. Absent such an affidavit, this rejection cannot stand.

Applicant also respectfully asserts that the invention, as recited in the claims, is fully supported by the specification as understood by one of ordinary skill in the art. The parameters of the testing make clear the recited limitations which include the 10db. No further support is required or necessary.

Further, the examiner asserts that aspects of claim 42 are not supported, namely, the phrases “*carbon nanotubes that are not in contact with each other, other than along their longitudinal areas*” and “*are not aligned or oriented to provide electromagnetic shielding*.” Applicant respectfully disagrees.

Applicant respectfully notes that support for these phrases is replete throughout the application. Even a cursory review would have revealed that support for the exact phrase

*“carbon nanotubes that are not in contact with each other, other than along their longitudinal areas”* can be found at page 2, last paragraph, and page 13, third paragraph. Support for the phrase *“are not aligned or oriented to provide electromagnetic shielding”* can also be found throughout the application in that Applicant’s state that alignment or orientation provide electromagnetic shielding (see specification at least at page 2, last paragraph, page 3, second and third paragraphs, page 4, fifth paragraph provides a discussion of aspect ratios and alignment, page 5, last paragraph, page 6, second paragraph, page 13, paragraphs 7, 9 and 12, page 14, paragraphs 5, 6, 9, 10, and 12).

The rejection of claims 23-49, 52-54 and 76-103, under 35 U.S.C. § 112, second paragraph, is clearly in error and Applicant respectfully requests that it be withdrawn.

B. Claims 23-49, 52-54 and 76-103 stand rejected, under 35 U.S.C. § 112, second paragraph, as allegedly not enabled by the specification. Applicant respectfully traverses this rejection.

Specifically, the Examiner asserts that, while being enabled for the composite of PET and nanotubes having an enhanced electromagnetic shielding, the specification is not enabling for the recited composites. Applicant respectfully disagrees.

As stated most clearly in the specification:

*“The polymeric material used in the composites of this invention is not critical. Typically it will be chosen in accordance with structural, strength, design, etc., parameters desirable for a given application. A wide range of polymeric resins, natural or synthetic, is useful.”* (See Specification, page 5, first paragraph).

PET is only one example of such a polymeric resin, which is clear to one of ordinary skill in the art and clearly explained in the specification. If the Examiner has some sort of expertise in the field of the invention, Applicant respectfully requests that an Examiner’s Affidavit be provided explaining that expertise and also the basis for this unsupported assertion. Absent an Examiner’s Affidavit or any supportable evidence, Applicant respectfully requests that the assertion be withdrawn.

The rejection of claims 23-49, 52-54 and 76-103, under 35 U.S.C. § 112, second paragraph, is clearly in error and Applicant respectfully requests that it be withdrawn.

**Remarks Regarding 35 U.S.C. § 102(e) or, in the alternative, 35 U.S.C. § 103(a)**

A. Claims 23-49, 52-54, 76-104 and 108-122 stand rejected, under 35 U.S.C. § 102(e) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,683,783 ("Smalley"). Applicant respectfully traverses this rejection.

In the Office Action, the Examiner states that "*the recited enhancement of the recited dB is an inherent property of the article taught by Smalley*" (see Office Action, page 4, last paragraph). The Examiner further states that "*Applicant asserts that Smalley et al failed to disclose or suggest that at least aspect ratio and alignment of carbon nanotubes confers electromagnetic shielding effectiveness and applicant's such statement would be partial evidence that Smalley et al teach the instant composition even though Smalley et al is silent as to the electromagnetic shielding effectiveness.*" (see Office Action, page 4, last paragraph). Applicant respectfully disagrees.

Applicant respectfully asserts that the examiner's comments recited above make no sense whatsoever. Electromagnetic shielding is not an inherent property of carbon nanotubes. Only through Applicant's claimed efforts is shielding possible. Applicant stated in prior responses, and here again repeats, that Smalley is silent as to aspect ration and alignment. That remark can in no way be construed as an admission that carbon nanotubes inherently provide electromagnetic shielding.

Nowhere in Smalley or in the Examiner's comments is any connection made between electromagnetic shielding and the properties of aspect ratio, orientation or alignment. Nowhere in Smalley are these properties disclosed, discussed or suggested. Applicant respectfully asserts that electromagnetic shielding is not an inherent property of carbon nanotubes, nor is it a "necessary function" of carbon nanotube containing composites. Mere speculation that carbon nanotubes may be used with shielding does not anticipate or suggest the experimentation necessary to form a composite with EMI shielding. Only after deliberate experimentation to achieve the specific combination of aspect ratio, orientation and/or

alignment of the carbon nanotubes as claimed can formation of a composite result in EMI shielding and/or low observability.

None of the comments in the Office Action are directed to Applicant's "claimed" invention. No connection whatsoever is made between orientation, alignment or aspect ration of the nanotubes themselves with any disclosures in Smalley. The rejection of claims 23-49, 52-54, 76-104 and 108-122, under 35 U.S.C. § 102(e) or, in the alternative, under 35 U.S.C. § 103(a), is in error and Applicant respectfully requests that it be withdrawn.

#### **Remarks Regarding 35 U.S.C. § 103(a)**

Claims 23-49, 52-54, and 76-122 stand rejected, under 35 U.S.C. § 103(a) as allegedly obvious over Smalley in view of U.S. Patent No.5,908,585 ("Shibuta"). Applicant respectfully traverses this rejection.

Applicant respectfully reasserts all remarks made above and all remarks made in prior Responses and Amendments in the prosecution of this application with regard to Smalley. Smalley does not suggest Applicant's claimed invention and, therefore, for at least this reason the rejection fails. Nevertheless, in an effort to expedite prosecution Applicant provides the following additional remarks regarding Shibuta.

Examiner Yoon makes no substantive comments in the instant Office Action regarding Shibuta. The sole comment made by Examiner Yoon is in the Office Action, mail dated June 20, 2006. therein, Examiner Yoon states that "*Shibuta et al teach that the use of carbon nanotubes in shielding electromagnetic waves is well known in the art at col. 2, lines 1-4, and such teaching supports the examiner's position in above.*" (see June 20, 2006 Office Action, page 6, top paragraph).

Shibuta discloses a mixture of multi-walled nanotubes *and* metal oxide powder in order to achieve the disclosed conductivity, which is the function required for shielding. Shibuta specifically does not disclose that its recited conductivity, and thus shielding, can be achieved by the use of carbon nanotubes, which is specifically recited by applicant. Shibuta achieves the recited conductivity because of the presence of metal (see Shibuta, column 4, lines 24-29). This is not applicant's invention as recited in the claims.

Further, Shibuta neither discloses nor suggests aligned or oriented carbon nanotubes, which is specifically recited in every independent claims, and neither alignment nor orientation are inherent properties of Shibuta's carbon fibers. The carbon fibers in Shibuta are necessarily entangled because Shibuta is silent to any further processing of the fibers for disentanglement or any motivation for doing so. Therefore, because Shibuta's and Applicant's compositions have different structures, they cannot be said to have similar properties. At any rate, Shibuta does not disclose or suggest any relationship between carbon nanotubes and alignment as recited in Applicant's claims.

Further, none of the comments in the Office Action are directed to Applicant's "claimed" invention. No connection whatsoever is made between orientation, alignment or aspect ration of the nanotubes themselves with any disclosures in Smalley or Shibuta. Thus, the rejection of claims 23-49, 52-54, 76-104 and 108-122, under 35 U.S.C. § 103(a), is in error and Applicant respectfully requests that it be withdrawn.

#### **Examiner Interview of January 31, 2006**

Applicant respectfully notes that Examiner Yoon, the undersigned and the inventor discussed the relevance of Smalley to the claimed invention at the interview of January 31, 2006. It was agreed at that time that Smalley did not disclose or suggest Applicant's claimed invention with respect to a claim limitation that would provide a value to the enhancement provided by carbon nanotubes. That exact amendment was made to all independent claims and also new claims 109-122 were added with further limitations on that exact point. It appears to the undersigned that the Examiner simply changed his mind. However, no explanation as to why was provided in the Office Action.

#### **Request for New Examiner**

Applicant respectfully requests that a new Examiner be assigned to this application.

#### **Conclusion**

Applicant has now received eleven Office Actions for this case, filed over eleven responses, had four interviews with the Examiner, and endured a prosecution hold. Upon reviewing the prosecution history, it is believed clear that most if not all rejections imposed in

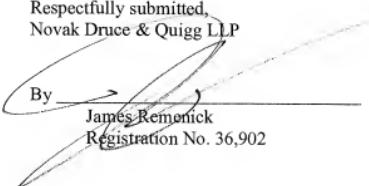
those Office Action were not soundly based. In view of the foregoing remarks, reconsideration of the application and issuance of a Notice of Allowance is respectfully requested.

Should additional fees be necessary in connection with the filing of this Responsive Amendment, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge **Deposit Account No. 14-1437 for any such fees, referencing Attorney Docket No. 8125.002.CNUS**; and applicant hereby petitions for any needed extension of time not otherwise accounted for with this submission.

Date: July 2, 2007

Respectfully submitted,  
Novak Druce & Quigg LLP

By \_\_\_\_\_

  
James Remenick  
Registration No. 36,902

**Customer No. 69911**  
Novak Druce & Quigg LLP  
1300 I Street, NW  
1000 West Tower  
Washington, DC 20005  
Tel: (202) 659-0100  
Fax: (202) 659-0105